Who's in Control? Method and Theory in Hawaiian Archaeology

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Genetic fallacy: The essence of an entity is isomorphic with the process by which it arrived at its present state.

—Buchler and Selby (1968:5)

ARCHAEOLOGICAL RESEARCH IN HAWAI'I stands at an important juncture. The rate at which prehistoric and historic properties are being discovered and investigated is rapidly increasing due to land development within the state. As a result, more archaeological work is being done in Hawai'i than ever before, and the number of individuals employed in archaeology is at an all-time high. The kinds of problem domains that Hawaii archaeologists now study are more plentiful, and these domains have considerably enlarged the array of potential archaeological topics. Thus both the role of archaeology in native Hawaiian history and its scholastic significance would seem to be the source of little debate. Unfortunately, this is not the case. As archaeological work has expanded in Hawai'i, so too has the rate and scale at which archaeological resources are being destroyed. Increasingly, the Hawaiian community finds itself at odds with archaeologists over issues pertaining to interpretation, historic preservation, and control of what were once viewed as exclusively "archaeological" resources. Today, the archaeological community varies widely in its training and interests and in its interpretation of the culture history of the Islands. The institutional setting in which archaeological research is pursued has shifted from the Bishop Museum and the University of Hawaii to private archaeological consulting firms. Funding for archaeological projects comes largely from private firms or public agencies whose impetus for archaeological research lies in the planning and management of historic resources. Archaeology has become a commodity. These developments suggest that archaeological praxis in Hawai'i cannot continue to be conducted or described as it has in the past.

This juncture provides a useful opportunity to observe and comment on two related aspects of Hawaiian archaeology because they pertain to both the past and

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present of the discipline. They are the role of theory and method in archaeology, and prominent archaeological research themes in Hawai'i. The history of Hawaiian archaeology, as it is presented here, will illuminate some of the ways in which method, theory, and archaeological facts are or have been articulated. Their relatedness and their effects on our construction of Hawaiian prehistory have not always been recognized by archaeologists. Consequently, methods (and to some extent theory) have proliferated in Hawaiian archaeology in the absence of critical examination. We argue for a more self-conscious archaeology, one in which archaeologists acknowledge their responsibility and their position with respect to the archaeological record and various interested audiences.

THEORY IN HAWAIIAN ARCHAEOLOGY

As Dunnell (1982) has observed, theory in Americanist archaeology is incompletely formalized, and, consequently, archaeologists employ a variety of conventions for creating knowledge about the past. In Hawai'i, as elsewhere, these theoretical conventions, because they have been drawn from our own cultural experience, are often covert and are rarely examined in detail. In most cases we find that the assumptions and principles that have guided the archaeological process are deeply embedded in the conclusions reached. Ironically many archaeologists remain unaware of their presuppositions about Hawaiian culture and prehistory in general. By revealing the underlying ideas, our goal is not to criticize but to focus attention on questionable assumptions and to highlight the important role theory and method play in all archaeological research, whether or not these domains are acknowledged in one's work. Also, because most archaeologists working in Hawai'i have been trained in the United States, we occasionally draw upon the history of Americanist archaeological theory as a means to illustrate certain characteristics of Hawaiian archaeology.

Traditional Assumptions about Hawaiian Prehistory

Virtually all theoretical perspectives that are represented in Hawaiian archaeology have been affected by the considerable continuity from prehistory to history in the Islands. Although the size of the Hawaiian population decreased enormously during the historic period (Schmitt 1968; Stannard 1989) and Hawaiian culture was systematically undermined by missionization and colonization, the prehistoric past is seen as connected to the historic past in Hawai'i. The nature of this connection is rarely articulated, but it usually includes a common ethnic and cultural thread that unites successive generations of native Hawaiians. The documentary record for Hawai'i also promotes this perspective. European explorers assumed there was a common cultural heritage in the Islands and recorded it as such.

The implications of this are obvious. Archaeological remains in Hawai'i have been interpreted as the work of historically documented Hawaiian culture pushed back in time. In many cases, the archaeological record visible today in the form of architectural remnants was still in use (i.e., part of systemic context) at the time of early European contact in the late eighteenth century. With the exception of a few sites (e.g., the "religious structures" on Necker Island), archaeologists have found it relatively easy to associate the archaeological remains of Hawai'i with historically

described Hawaiian practices. The same is true for most artifacts; these were known from the historic period and their production or use has been linked to pre-Contact Hawaiians.

This perspective is significant because Americanist archaeological research during the early decades of this century (see Willey and Sabloff 1980:36) was dominated by questions pertaining to "lost civilizations and tribes" or the discovery of previously unknown (to European or American archaeologists) sites or monuments. This approach was abetted by the massive early historic loss or reduction of native Indian populations in parts of North America and racist stereotypes of Indian abilities fostered by an expanding European population (Trigger 1989:125). Thus archaeological theory in America was predicated on the development of methodologies for identifying the cultural or ethnic groups responsible for the Indian ruins that dotted the country. Archaeologists in Hawai'i were not immune from the set of beliefs that structured this research program. However, there was a ready answer to the question about the cultural affiliation of prehistoric archaeological remains in Hawai'i. Consequently, archaeologists in Hawai'i have rarely justified or examined their conception of Hawaiian prehistory, especially as this reflects certain fundamental positions regarding Hawaiian culture and archaeological variability.

Conceptualizations of the past in Hawai'i were represented by the first generation of archaeologists working in the Islands as immediate, historical, and direct. Hawaiian prehistory was viewed, therefore, as a direct extension of Hawaiian society as it was described or recorded by Europeans or European-educated Hawaiians as recently as the end of the nineteenth century (Emory 1943). There is an important theoretical corollary to this view. Archaeologists (as well as historians) applied essentialist conventions to the description and interpretation of the past in Hawai'i. They created a prehistoric or traditional Hawaiian culture, and this was treated as a unified, unchanging, and geographically invariate phenomenon. Hawaiian prehistory became the history of Hawaiian culture before European contact.

The effects of this essentialist perspective on early Hawaiian archaeology is best exemplified by the long-held assumption that the duration of the prehistoric period in the Islands was relatively brief (Fowke 1922). Archaeologists believed this assumption could be supported by reference to the relative homogeneity of Hawaiian culture as it was described at European contact. In other words, there was no significant cultural variation across the different islands of Hawai'i. This homogeneity, in turn, could only be the outcome of a relatively recent arrival by the Hawaiians to the Islands, or so archaeologists reasoned. Nearly all early synthetic treatments of Hawaiian prehistory agree that Hawaiian archaeology is the study of a unified ethno-linguistic group. The possibility of significant intra-cultural variation—except that pertaining to status—was rarely examined. This made it possible to describe Hawaiian culture in relatively flat temporal terms. Similar descriptions of prehistoric remains were common throughout North America before 1930.

The above example illustrates how theoretical conventions used to produce facts can be interbedded in the absence of a formal theory without clearly designated implicates. Cultural homogeneity is a function of the conception of Hawaiian culture that archaeologists accepted at the time. Homogeneity is also a function of temporal duration; the longer the duration the less homogeneous the culture. Assumed cultural homogeneity is thus tied to an assumed short duration for Hawaiian prehistory. In turn, because they assumed a short prehistoric time span in

Hawai'i, archaeologists also assumed that cultural remains would show relatively little change over time.

Such an approach to understanding Hawaiian archaeology implies that empirical evidence played a very small role in the evaluation of crucial conceptions about the past in the early decades of this century. Labeling this period "empirical" as Dye (1989:7) has recently done is a mistake. Despite the identification of several research problems, including questions regarding chronology and origins, there was little opportunity for archaeological observations to be explained or interpreted using more general statements. Similarly, these observations did not challenge existing theoretical assumptions. Instead the cultural facts about Hawaiian prehistory were determined a priori by theory. This outcome occurred because the conventions used to produce facts were indistinguishable from one another. Thus facts operated as part of the theoretical system and were not empirically evaluated.

Perceptions of Hawaiians by Europeans and the conception of Hawaiian prehistory by archaeologists were rarely motivated by objective or scientific concerns. The dominant themes associated with anthropological and historical accounts of Hawaiian culture—chiefly authority and power, sexuality, and religion—cannot be separated from the cultural conceptions within which western observations were first framed and motivated. Historic Hawaiian culture, as described by Europeans and Americans, is the invention of those individuals. Similarly, the theoretical model of culture, especially with its emphasis on the geographic and temporal uniformity that is pervasive in most early studies, is a construct. These approaches further transformed their production of Hawaiian culture into a phenomenon. As a phenomenon, Hawaiian culture was described in normative fashion based on western perceptions of traditional Hawaiian behavior and ideas.

Over the past decade archaeologists have begun to acknowledge that the ideas they use to describe prehistory can express and, in turn, affect political and professional relations (Patterson 1986; Trigger 1986, 1988). In Hawai'i, the development of an essentialist perspective on prehistoric Hawaiian culture was part of a more inclusive trend within Americanist archaeology toward increasing professionalization of the discipline. The idea of a relatively invariant prehistoric Hawaiian culture supplanted Fornander's (1878) earlier "speculative" reconstruction of Hawaiian prehistory based on oral traditions that incorporated multiple migrations, a long, two-period chronology, and biblical allegory. At the turn of the century, professional archaeologists in Hawai'i viewed such traditions skeptically, especially when they were interpreted literally by non-archaeologists. In their place archaeologists substituted their own "scientific" version of prehistory. In so doing they also established the professional rules by which archaeologists would be expected to adhere, including formal training in anthropology, affililation with an established institution, and sanctioned field work projects.

It was not coincidental that archaeologists attributed a short prehistoric time span and little cultural change to Hawaiians when their descendants were being alienated from much of their traditional lands and political organization. Whatever the ultimate origin of the belief that Hawaiians themselves were recent immigrants, here was a rationalization for usurpation and colonization based on a stereotype that had no empirical validation. This theme is relatively common in American Indian colonial history; short occupation span and limited cultural change were often attributed to Indians as a justification for their removal from or appropriation of native

land. In the case of Hawai'i, our knowledge about the Hawaiian past, as it has been archaeologically produced, has rarely challenged established western beliefs. More important, archaeological knowledge has generally supported or drawn support from these dominant beliefs (Tobin 1989). The current debate on the identification of prehistoric Hawaiian infanticide and pre-European population decline (Clark 1988; Graves and Ladefoged 1990*b*; Kirch 1982*a*; Stannard 1989) illustrates how archaeological facts become incorporated into the literature and established as fact in the absence of well-confirmed evidence.

After 1920 archaeological research in Hawai'i bifurcated, especially when the short chronology and essentialist perspective came to dominate the prehistoric narrative of the period. First the description of Hawaiian sites and artifacts was substituted for historical or legendary narrative. Hawaiian prehistory became synonymous with the ancient relics and abandoned structures of the Islands. Most monographs of this period are little more than physical descriptions of traditional Hawaiian material culture (e.g., Bennett 1931; Emory 1924; McAllister 1933). Interpretation occurred when these remains could be linked to Hawaiian folklore or ethnohistory. Where there was no folklore or if the archaeological remains were somehow unusual or atypical, as in the case of Necker Island, the remains were thought to be enigmatic and largely undecipherable (Emory 1928; Cleghorn 1988). The outcome of this was to both impoverish Hawaiian prehistory and highlight the break between the prehistoric (i.e., traditional, old, quickly failing) and contemporary (i.e., modern, new, growing) periods.

An alternative was to look for Hawaiian prehistory outside of Hawai'i, an increasingly popular perspective of Hawai'i archaeologists until 1950. Archaeologists from the Bishop Museum undertook field work elsewhere in Polynesia, and ethnologists began to compare material culture and other traits across Polynesia (Buck 1938; Burrows 1939; Emory 1933, 1934, 1939). The approach was theoretically consistent with the dominant culture historical orientation of most professional archaeologists during this era: If there was no time depth to local prehistory (as most archaeologists assumed), then the strategy was to look for similar archaeological materials in other parts of Polynesia. On this scale (i.e., inter-archipelagic), artifact variability could be recognized. Similarities in material culture were viewed as the outcome of a direct ancestry between Hawai'i and Tahiti, and later Hawai'i and the Marquesas. Differences in material culture determined temporal change and the sequence of migration was manifested by geographic comparison of those differences between Hawai'i and central Polynesia (Emory 1959). Using this procedure, Hawai'i archaeologists drew upon culture history theory from American archaeology, in which variability (here expressed geographically) was explained as stylistic change. Still change was viewed largely as an insignificant domain pertaining only to non-functional aspects of artifact manufacture. Hawaiian culture as a timeless category remained unchanged.

Until 1950 Hawaiian archaeology was largely unscientific, both in methodology and theoretical perspective. Prior to this time, observations on the archaeological record of Hawai'i had little effect on the underlying theoretical presuppositions of archaeologists. Prehistoric Hawaiian material culture was known by its location and a series of conventional attributes (e.g., size, material). Neither the assumptions underlying the use of such descriptions nor their possible connections to more general propositions were ever examined. The concept of an essential Hawaiian

culture of recent origins rendered major portions of the archaeological record insignificant.

Modern Archaeology in Hawai'i

The development of radiocarbon dating and the fortuitous excavation of a rockshelter site on O'ahu finally prompted the revision of the established prehistory (Emory et al. 1959:ix). At Kuli'ou'ou Rockshelter, charcoal from the base of the cultural deposit was dated to nearly 1000 years, and the deposit contained artifacts that had no known historical counterparts in Hawai'i. For the first time, archaeological evidence forced the reevaluation of several major assumptions about prehistoric Hawaiian culture. Hawai'i possessed a significant prehistoric period, and its remains lay buried in the ground. Also certain aspects of the material culture assemblage had undergone change during the time the Islands were occupied and prior to European contact. Though it was not appreciated at the time, this finding challenged another assumption: that the prehistory of Hawai'i can only be understood with reference to European descriptions of Hawaiians.

The discovery that Hawai'i possessed a much longer prehistoric period than traditionally thought had its greatest impact on archaeological conceptions of the locus for change. From that time on, the search for local change would predominate Hawaiian prehistory (Emory et al. 1959; Emory and Sinoto 1961; Sinoto 1962, 1967). The underlying theory that made it possible to conceive of archaeological homogeneity was little changed, however. Although the essentialist conception of prehistoric Hawaiian culture as an invariant social entity was no longer empirically acceptable, there was no alternative to this paradigm. Here again is an illustration of how archaeological facts can be incompatible with theory and still not necessitate major theoretical change.

This incompatibility was possible because prehistoric change was conceived stylistically. Also the temporal resolution of style in archaeological assemblages can be achieved through suitable methods (e.g., a combination of seriation and stratigraphic analyses) and in the absence of strong explanatory theory. Ironically, the initial success of the stylistic model (e.g., Sinoto 1962) has not been confirmed or replicated (Kirch 1985; Goto 1986) elsewhere in Hawai'i. At the same time, little geographic variability has been recognized (but see Kirch 1990), and furthermore, the functional aspects of Hawaiian culture have remained unchanged through time or space.

To accommodate the material culture variability identified for early prehistoric remains in Hawai'i and elsewhere in Polynesia, archaeologists have designated a new archaeological unit: ancestral Polynesian Society (Green 1979; Kirch 1984, 1986). Characterized by a distinctive artifact assemblage and presumably by a different social order, later manifestations of this unit have been found on several Hawaiian Islands (Emory et al. 1959; Emory and Sinoto 1969; Kirch 1971, 1975; Pearson et al. 1971). After nearly a century of study, archaeologists have replaced a single invariant Hawaiian culture with two: a form of early ancestral Polynesian Society and a later Hawaiian culture. Fornander then was closer to the mark than archaeologists first recognized. Nonetheless, the essentialist qualities of these units persist; only their temporal boundaries have been redrawn. Despite the differences

that archaeologists have used to delineate the units, the assumption of an underlying cultural unity for Hawai'i continues to structure our view of the past.

Over the past two decades, the idea of prehistoric change has become the dominant theme in Hawaiian archaeology. Hawai'i archaeologists have followed recent theoretical trends in Americanist New Archaeology but with a few local elaborations. First, the most important archaeological studies (e.g., Mākaha on O'ahu, Lapakahi on Hawai'i and Hālawa Valley on Moloka'i) have taken the region or community as the scale for analysis (Green 1969, 1970, 1980; Kirch and Kelly 1975; Pearson 1969; Tuggle and Griffin 1973). Although, as Cordy (1984) notes, none of these attempts is sufficient to test general propositions about cultural change, they do depart from previous field work in Hawai'i, which emphasized individual sites or unsystematic site surveys. Another recent theoretical trend is the emphasis on variability in the temporal dimension. This orientation is somewhat surprising, given the functionalism of the New Archaeology throughout North America. In Hawai'i, the emphasis on cultural change reflects the lack of stylistic typologies for portable artifacts or detailed periodization of the archaeological record. Hawaiian archaeological sites, even those visible on the surface, cannot be assumed to be contemporaneous. In most cases, it is somewhat easier to monitor change in the archaeological record than to construct relatively synchronic analytic units. A third trend involves the study of change in the archaeological record of Hawai'i and has generally focused on relatively few variables. These include the changing characteristics of the natural environment of the Islands (Kirch 1982*a*, 1983); population dynamics (Hommon 1976; Kirch 1982*a*, 1984, 1985); agricultural intensification (Kirch 1977; Riley 1973; Rosendahl 1972); and increasing social complexity (Cordy 1974, 1981; Earle 1978; Hommon 1976; Kirch 1984). Finally, explanation has been sought by emphasizing materialistic factors, often linked to ecological or evolutionary parameters. Not only do these variables have a dynamic component, but they are also functionally related. By incorporating the concept of systemic cultural change and by assigning priority to several different variables with potentially observable archaeological implicates, Hawai'i archaeologists are now poised to do what has eluded them for years. The archaeological record of the Hawaiian Islands can be monitored for indications of prehistoric change across these key variables, and the dynamic relations among the variables can be evaluated in terms of archaeological theory. Theory would specify general propositions that explain the operation of variables with empirical implicates. That such tests have not yet been conducted in Hawai'i is not entirely the result of incomplete theories, the survival of essentialist concepts, or insufficient field work. We must now direct our attention to the place of archaeological method in Hawaiian archaeology and the crucial role that method plays in articulating theory into fact.

METHOD IN HAWAIIAN ARCHAEOLOGY

Strictly speaking, archaeological methods should only refer to those analytic strategies that are used to generate meaningful structure from our observations of the archaeological record. In practice, however, this stipulation is often not met. Archaeologists regularly employ data and methods from other disciplines. Some of these methods are linked to archaeology through a set of protocols. For example, the

radiocarbon dating method is applied to organic materials from archaeological deposits, but the rationale for the method is derived from geophysics. The dating estimates produced by this method, which archaeologists treat as data, are associated with events that must be inferred to be of archaeological relevance (Dean 1978). Unfortunately, the association of date estimates to prehistoric events is often accomplished by assumption in Oceanic archaeology rather than by analysis or argument (Graves 1986*a*, 1986*b*). We suggest that archaeological methods be employed to assess the reliability of each estimate and to characterize in temporal terms the structure of associated archaeological deposits.

What is the role of method in Hawaiian archaeology? Because methods are used to structure observations in a meaningful fashion, they help to determine facts and inferences that extend beyond simple observations about the archaeological record or prehistoric events. In other words, method influences the confirmation of hypotheses about Hawaiian prehistory. Herein lies a problem. Not all methods are suitable or appropriate for the contexts in which they are applied. In such instances, methods can and do produce inaccurate results. Unfortunately, such occurrences in archaeology are not conservative (e.g., the occasional rejection of a true hypothesis). More often, the impact of these method-based errors is to confirm false or unsupported hypotheses. In so doing, the evaluation of more general propositions becomes problematic because it is unclear if the congruence between theory and fact is due to empirical sufficiency or if it is the product of inappropriate methods. Most archaeologists tend to accept any congruence at face value.

The Use of Oral and Documentary History as Method

Historical records, drawn either from written or oral sources, represent a source of information about the past. This information, however, is not directly archaeological; that is, it does not refer to the archaeological record. Because historical information is generated as a narrative description about people and events and because these people and events are said or thought to have existed in the past, such information (pertaining either to direct archaeological referents or the relations that may be generalized from these referents) may be assumed or hypothesized to apply to the prehistoric past.

The historical method in archaeology consists of two steps. First, information is elicited or generated from written or verbal accounts. This information may be transformed through generalization or summation. Second, the results are applied to the past; that is, a match is made between the historical statements and some temporal segment of the past.

In Hawai'i use of the historical method has ranged from dating the construction of major *heiau* sites based on genealogies of chiefly families (Ladd 1969, 1987) to the initial occupation of the island of Lana'i (Emory 1924) and inferences about the architectural units associated with residential groups (Cordy 1981). In these and all cases based on this method, Hawai'i archaeologists must (but rarely do) confront several problems.

First, the reliability of information used as data from oral narratives or written sources must be assessed. Reliability has at least two facets. Is the information accurate with respect to its historical context? Errors are sometimes committed in the elicitation or recording of information. The identification of infanticide in Hawai'i

by William Ellis was later contradicted by him (Tobin 1989), although this has not been previously noted. Moreover, we must accept the fact that individuals responsible for recording information were culturally biased. It is necessary, therefore, to understand or estimate the cultural context within which observations were made and recorded. Early European explorers and missionaries tended to see certain aspects of Hawaiian society as a reflection (or aberration) of their own society (Gunson 1963; Kelly 1967). Consequently, their descriptions and interpretations of Hawaiian culture and behavior might have been, in ways unrecognized by them, indicative of European cultural conventions and institutions. Also some historic accounts of Hawaiian culture were obviously retold from previous accounts without proper attribution (see Valeri 1985:xxi). Such retellings lack independence yet add credibility to the original information. Then these claims are used to support dominant cultural beliefs and to reinforce sterotypical views about Hawaiians. The methodological problem associated with distinguishing historical accuracy is a troubling one for archaeologists, especially when the secondary literature forms the primary basis for much of their information, which is then applied to the prehistoric past. Valeri (1985) makes a similar point regarding the uneven accuracy of documents and records consulted for his ethnohistorical study. Nonetheless, he seems relatively untroubled by this and does not suggest how such documents might be assessed for their reliability.

Historical accounts often form the basis for generalizations about Hawaiian culture. Again, Valeri's book is instructive because he attempts a universalistic description of traditional Hawaiian religion. This cultural model ignores significant religious variation in the Islands or might actually apply only on the island of Hawai'i in the late eighteenth century. These limitations were noted by Valeri (1985:184–185) but were left unexamined (see Howard 1986). In fact, the narrative form employed by most historical accounts predisposes them for subsequent normative use. Such applications submerge change and intra-regional variation into typical representations of Hawaiian behaviors or cultural institutions. This method is obviously congruent with the essentialist perspective adopted by many archaeologists.

If this were not enough, the application of historically based models to the prehistoric period in Hawai'i inevitably results in the over-interpretation of the archaeological record. Generally, there is little attempt to warrant or examine the relevance of the historical model in terms of the prehistoric period. This commonly leads to situations in which the late prehistory of Hawai'i is described in terms identical to those used during the historic period. Many archaeologists seem satisfied with this approach even as they note its methodological shortcomings for more remote time periods (Kirch 1985). Nonetheless, the problem remains: what are the conditions by which historically derived information or models can be used for archaeological purposes. Until Hawai'i archaeologists begin to address this issue, there can be little substantive or theoretical achievement.

Not only does historical information pose methodological problems in terms of its application, but Hawai'i archaeologists have also tended to abandon perfectly suitable archaeological methods on historic or late prehistoric topics in favor of documentary records. In Hawai'i, a number of relatively innovative attempts have been made to infer aspects of late prehistoric social complexity or agricultural production on the basis of archaeological materials (Cordy 1981; Kirch 1977, 1984; Weisler and Kirch 1985). These involve methods for comparing the size and diver-

sity of remains within residential architectural features, or analyzing the construction, dating, and agricultural potential of various field systems. In many of these cases the archaeological analyses are incomplete once historic documentation is introduced to augment the late prehistoric period description. History replaces potentially useful archaeological analysis and inference. For example, the archaeologically documented shift in settlement-subsistence strategies after A.D. 1000 in Hawai'i, which included the establishment of inland settlement presumably for increased agricultural production, is often interpreted as a correlate for the institutionalization of the *ahupua'a* form of land and territory organization (Hommon 1986; Kirch 1984, 1985). At this point descriptions of prehistoric Hawaiian culture are rendered in terms of historically documented relations, for example, separation of chiefly and commoner statuses, alienation of commoners from title to the land, intensification of production, and competition between chiefly lines. Such procedures are inherently typological, but more important, they do not fully utilize the potential of the archaeological record to contribute to the resolution of Hawaiian prehistory. And finally, reliance on historical data suggests that such information is always correct, is completely known, and is superior to data that might be obtained through archaeological analyses. Under these circumstances the archaeological record ceases to offer a reliable and alternative source of data for descriptions of the Hawaiian past.

The Use of Archaeological Methods in Hawai'i

If Hawaiian archaeology is to establish some independence from the dominance of European-influenced Hawaiian history, then the development and use of archaeological methods takes on considerable importance. Not only should methods be sensitive to the sources of archaeological variability to which they are applied, but their application should be regularly reviewed to ensure that the assumptions that guide their use continue to enjoy theoretical support. Because methods will generally produce answers regardless of the adequacy of the data on which they are based, it is occasionally necessary to examine the basis for data as well.

For instance, Hawai'i archaeologists have devoted considerable attention to methods for monitoring prehistoric demographic change (Hommon 1980, 1986; Cordy 1981; Kirch 1982*a*, 1984, 1985). These studies all suggest that at least some Hawaiian populations had begun to decline in total numbers before the arrival of Europeans in the late eighteenth century. Here we have a case in which archaeological data provided an unanticipated result; there was no historical documentation that suggested Hawaiian populations were diminishing at the time of initial contact. There were, however, several historical accounts for population decline after the arrival of missionaries in 1821.

A number of archaeological studies have also indicated substantial prehistoric modification of the natural environment in Hawai'i, ranging from the extinction or extirpation of several species of birds and land snails (Olson and James 1982, 1984; Christensen and Kirch 1986; James et al. 1987) to the alteration of vegetation zones (McEldowney 1979) and the erosion or transport of upland soils and sediments to low-lying coastal areas (Kirch 1982*b*; Spriggs 1991).

The combination of prehistoric Hawaiian population decline and environmental change suggested a causal link: prior to European contact certain Hawaiian populations had reached or surpassed the upper limits of the carrying capacity of the land to

support them, environmental degradation occurred, and the population declined as a result (Hommon 1980; Kirch 1982*a*, 1984, 1985). This conclusion has also been generalized to all of Hawai'i in the secondary literature (Keegan and Diamond 1987).

The method employed to document demographic change in Hawai'i is based on changes in the relative proportions of datable materials from archaeological sites, primarily volcanic glass and, less often, charcoal. As Schacht (1981) has observed, this paleodemographic method has been widely used in Americanist archaeology. When plotted against time, graphs of the frequency distribution of volcanic glass dates from Hawai'i show a marked decrease in the 50- to 100-year period prior to European arrival. In this case, there was also the apparent congruence in results: The prehistoric population curve for two localities, the island of Kaho'olawe and the leeward coast of Hawai'i, both exhibited pre-Contact declines in the number of dates.

Clark (1988) has recently critiqued the method upon which this form of prehistoric population censusing is based, including assumptions about uniform rates of date production, and potential functional variability in the contexts from which specimens were collected. There is also an additional problem: The reliability of the volcanic glass dating method in Hawai'i is currently suspect (Graves and Ladefoged 1990*b*). Because volcanic glass dates serve as data for all these paleodemographic analyses, any error that is associated with the dating method is compounded in subsequent archaeological analyses. Research on the island of Lana'i suggests that volcanic glass dates provide significantly older estimates than the true age for most archaeological features. However, when radiocarbon dates are combined with dating estimates based on the occurrence of historic materials for the Laehī area of Lana'i (Graves and Ladefoged 1990*b*), there is no decrease in the frequency of date estimates prior to ca. A.D. 1800. This finding is not congruent with hypotheses that propose a prehistoric population decline. In fact, it appears likely that many Hawaiian populations continued to grow in size after initial contact with Europeans at the end of the eighteenth century.

The problems associated with the volcanic glass dating method in Hawai'i extend beyond the topic of paleodemography and affect several other important studies of Hawaiian social complexity and agricultural production. Cordy's (1981) analyses of changes in the size of prehistoric residential complexes on the leeward coast of Hawai'i was predicated on volcanic glass dating. The temporal distribution of these dates at various sites was used to infer the transformation of Hawaiian social complexity. Similarly, one of the best documented agricultural systems in Hawai'i is located at Lapakahi (Pearson 1969; Rosendahl 1972; Tuggle and Griffin 1973). With survey, mapping, and selected excavations extending from the coast to the inland portions of the *ahupua'a*, the results of this project have influenced our understanding of agricultural change along the leeward coast of Hawai'i (see Kirch 1984, 1985). Yet again, most of the dates from Lapakahi are volcanic glass dates, and these estimates include all of the earliest dates for the conversion of inland zones to fixed field agriculture. When only radiocarbon dates from Lapakahi are used, estimates for the onset of agricultural expansion and possible intensification of production (Graves and Ladefoged 1990*a*) are significantly later than previously suspected. This, in turn, affects the orthodox model of prehistoric Hawaiian culture change (Kirch 1984) that is premised on slow and gradual change with population growth as the primary independent variable.

Clearly, archaeologists require procedures for producing data and testing hypotheses. However, the application of method in archaeology must take both aspects—the data and the model—into account. Evaluation of archaeological methods must, therefore, consider both the relevance of the model to the case under study and the manner in which data were created or altered. By failing to examine archaeological methods, Hawai'i archaeologists cannot always be sure if their conclusions are warranted. Even more problematic, as particular methods have been found to be inaccurate or inappropriate, there has been no systematic effort by archaeologists to determine their impact on our understanding of Hawaiian archaeology. For example, problems associated with the reliability of volcanic glass dating in Hawai'i have been recognized for at least a decade (Olson 1983). Yet with few exceptions (e.g., Welch 1989) there have been no attempts to carefully reanalyze volcanic glass dates, especially those from the island of Hawai'i, where most of the research on prehistoric change has been conducted. Without such studies, archaeologists continue to depend on unreliable data to construct chronologies and to estimate important events in Hawaiian prehistory. Because methods determine archaeological facts and these methods produce results that are broadly congruent with interpretive schemes or theoretical propositions, we suggest that archaeological methodology is now driving archaeological interpretation in Hawai'i. Unfortunately, this kind of scholarship reinforces beliefs among native Hawaiians that archaeologists continue to employ and support culturally biased assumptions or propositions in their interpretation of Hawaiian prehistory.

THE IDEA OF PREHISTORY IN HAWAI'I

We have suggested that the idea of prehistory in Hawai'i can be productively examined, especially insofar as the idea is dependent on theoretical constructs and methodological procedures. In Hawaiian archaeology neither method nor theory has been neutral about preconceived and poorly documented ideas on Hawaiian culture. Much of the prehistory of the Islands is premised on essentialist foundations. Some change in this perspective has already been accomplished. More and more we acknowledge that variation is inherent in archaeological materials, and this aspect of the archaeological record can be explained. To achieve this, however, archaeologists must replace ideal constructs about Hawaiian prehistory or modify procedures that presuppose typological linkages between cultural domains. Perhaps most important, we can no longer assume that Hawaiians have always been the same as they were when Europeans first observed and recorded their society in the late eighteenth century. At the very least, we must acknowledge that the native populations of Hawai'i at the time of European contact had, at minimum, 1000 years in which to generate cultural variation and to undergo change. Also in the years after European contact, Hawaiian culture continued to change. If we accept the premise that prehistoric and historic era cultural change occurred in Hawai'i, we must also be willing to believe that there was some potential variability in the geographic spread of this change across the Islands.

Variability and change, and the epistemological framework within which they are conceived, have important implications for the idea of Hawaiian prehistory. We can no longer assume that Hawaiian prehistory is the same as Hawaiian history or that it can or should be written in the same form as Hawaiian history. Neither do we need

to adopt the perspective that prehistory is the handmaiden to history. Although the documentary history of Hawai'i may provide valuable insights into prehistoric Hawaiian culture, it cannot be used as a substitute for prehistory. Archaeology has the potential for providing completely unanticipated knowledge about the populations of Hawaiians that lived in the Islands prior to their encounter with Europeans. Archaeologists must exercise care that this new knowledge is not simply interpreted or explained as it has been in the past, that it represents "typical" Hawaiian culture or that it is assumed to be typologically related to some other domain of Hawaiian culture.

Such contributions, however, require changes in archaeological methodology. Testing archaeological hypotheses is a two-step process involving an evaluation of data and the model to be applied. This approach can be extended to historical information, where both its reliability and relevance must be assessed in relation to the archaeological context. Multiple forms of data and multiple sources of data can help to improve the basis for our conclusions about the prehistory of Hawai'i.

Method alone, however, will not suffice to produce Hawaiian prehistory. As we have demonstrated, suitable archaeological methods can exist alongside theory with which they are incompatible, especially if the application of theory is never conducted in a formal manner. Alternatively, inappropriate methods can produce "reasonable" results, especially when the results conform to conventional views about Hawaiians.

Unfortunately, there are no assurances that these types of errors are a thing of the past in Hawaiian archaeology. Fortunately, we do have the means to identify such mistakes today and to correct archaeological facts. We do this by periodically challenging the authority of historic perceptions of Hawaiians and by conducting replicative or comparative archaeological analyses. Such critical assessments of Hawaiian archaeology by archaeologists are important because they can serve to improve our idea of prehistory while demonstrating to Hawaiians the unique perspective that archaeology can provide for their prehistory. The objective is to build blocks of knowledge based on well-tested method and assessed against some general theory, in which both are brought together to give meaning to variability in the archaeological record as it is explained.

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